Pest Management Regulatory Agency
Agence de réglementation de la lutte antiparasitaire

Re-evaluation Note

REV2001-02

Discontinuation of the Organophosphate Insecticide Ethyl Parathion

Ethyl parathion is one of the 27 pesticide active ingredients to be re-evaluated by the Pest Management Regulatory Agency (PMRA), as announced on June 29, 1999, in the Agency's publication REV99-01, *Re-evaluation of Organophosphate Pesticides*.

The purpose of this note is to inform registrants, pesticide regulatory officials, and the Canadian public that, in response to the re-evaluation announcement, the registrant, Cheminova Inc., of the technical grade active ingredient ethyl parathion has informed the PMRA that they do not intend to support continued registration of ethyl parathion and intend to discontinue the sale to the formulators and registrants of the end-use products. Information on the planned phase-out of the sale and use of this pesticide in Canada is provided in this note.

Products containing ethyl parathion have been used as fumigants in greenhouse cucumbers, tomatoes and ornamentals and as foliar spray for the control of various insects on the following crops:

> corn (field and sweet) , forage crops, pastures, fruit trees (apple, apricot, cherry, peach, pear, plum, prunes), beans, beets, blueberries, cole crops, carrots, celery, cranberries, grapes, lettuce, onion, peas, spinach, strawberries, tomatoes, and turnips.

The manufacturer of the technical grade active ingredient is also requesting a voluntary cancellation of all uses of ethyl parathion in the U.S. A "voluntary cancellation" of registration in the U.S. is equivalent to a "voluntary discontinuation of sale" of a control product in Canada.

(publié aussi en français)

October 19, 2001

This document is published by the Submission Coordination and Documentation Division, Pest Management Regulatory Agency. For further information, please contact:

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Facsimile: (613) 736-3798

ISBN: 0-662-31033-0
Catalogue number: H113-5/2001-2E

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1.0 Re-evaluation of organophosphate pesticides

Use of organophosphate (OP) pesticide products, which are mainly insecticides, includes a broad range of use–site categories, such as forests and woodlands, greenhouse food and nonfood crops, livestock, seed treatments, oilseed and fibre crops, stored food and feed, terrestrial feed and food crops, structural uses, outdoor ornamentals and indoor plants, plant scapes and turf.

The re-evaluation of organophosphate pesticides was announced on June 29, 1999 (REV99-01). Under the re-evaluation program, the PMRA uses a modern scientific approach to re-examine older active ingredients and their end-use products to determine their continuing acceptability in relation to human health and the environment.

2.0 Uses of ethyl parathion to be discontinued

Ethyl parathion (*O,O*-dimethyl *O*-4-nitrophenyl phosphorothioate) has been registered for use in greenhouses as a fumigant for the following pest–crop combinations:

> aphids, caterpillars, leafhoppers, leafrollers, mealybugs, spider mites, tarnished plant bug, thrips, whitefly in cucumbers, tomatoes and ornamentals;

and as a foliar spray for the following pest–crop combinations:

> Apples: apple aphid, codling moth, eyespotted budmoth, lecanium scale, mealybug, oriental fruit moth, oystershell scale, plant bugs, plum curculio, redbanded leafroller, San Jose scale, wooly aphid
>
> Apricot: aphids, cottony peach scale, lecanium scale, mealybug, oriental fruit moth, oystershell scale, plant bugs, plum curculio, San Jose scale, shothole borer
>
> Beans (green, dry, lima, snap): aphids, European corn borer, leafhoppers, leafminers, leafroller, Mexican bean beetle, thrips
>
> Beets: aphids, armyworms, caterpillars, flea beetles, leafhoppers, leafminers, leafrollers, spider mites, thrips, webworms, whitefly
>
> Blueberry: blossom weevil, cherry fruitworm, leafhoppers, mealybug
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> Carrots: carrot rust fly, leafhoppers
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> Celery: aphids, celeryworm, fleabeetles, leafhoppers, leafminers, spider mites, thrips, whitefly

Cherry: aphids, black cherry aphid, cherry fruit fly, lecanium scale, mealybug, oriental fruit moth, oystershell scale, plant bugs, plum curculio, redbanded leafroller, San Jose scale, shothole borer

Cole crops (broccoli, brussels sprouts, cabbage, cauliflower, kale): aphids, cabbagelooper, cabbageworm complex, diamondback moth, leafhoppers, leafminers, leafrollers, thrips

Corn (field and sweet): aphids, armyworm, corn earworm, European corn borer, leafhoppers, leafminers, leafrollers, thrips

Cranberry: cranberry fireworm, cranberry fruitworm, leafhoppers, mealybugs

Forage crops, pasture: aphids, armyworms, blister beetles, greenbug, leafhoppers, leatherjackets

Grape: grape mealybug, leafhopper, leafrollers

Lettuce: aphids, armyworms, cabbage looper, caterpillars, flea beetle, grasshopper, green stink bug, leafhopper, leafminer, leafroller, spider mites, thrips, webworm, whitefly

Onion: aphids, armyworm, cabbage looper, caterpillar, flea beetle, grasshopper, green stink bug, leafhopper, leafminer, onion maggot (adult), onion thrips, spider mites, webworm, whiteflies

Pea: alfalfa looper, aphids, pea weevil

Peach: aphids, codling moth, cottony peach scale, eyespotted bud moth, lecanium scale, mealybug, oriental fruit moth, oystershell scale, plant bug, plum curculio, redbanded leafroller, San Jose scale, shothole borer

Pear: aphids, codling moth, eyespotted bud moth, lecanium scale, mealybug, oriental fruit moth, oystershell scale, plant bug, redbanded leafroller, San Jose scale, wooly pear aphid

Plum and Prune: aphids, codling moth, cottony peach scale, eyespotted bud moth, lecanium scale, mealybug, oriental fruit moth, oystershell scale, plant bug, plum curculio, redbanded leafroller, San Jose scale, shotblade borer, woolly aphid

Spinach: aphids, armyworm, cabbage looper, flea beetle, grasshoppers, green stink bug, leafhopper, leafminer, leafroller, thrips, webworm, whitefly

Strawberry: blossom weevil, strawberry fruitworm, leafhoppers, mealybugs, strawberry leafroller

Tomato: aphids, armyworm, cabbage looper, caterpillars, flea beetle, grasshoppers, green stink bug, leafhoppers, leafminers, leafrollers, spider mites, thrips, tomato caterpillars, webworm, whitefly

Turnip: aphids, cabbage looper, cabbageworm complex, diamondback moth, leafhoppers, leafminers, leafrollers, thrips.

All of the above uses are being discontinued. No Domestic Class product containing ethyl parathion is registered in Canada.

3.0 Alternatives for ethyl parathion

The alternative products for the discontinued uses of ethyl parathion include other organophosphates, carbamates, synthetic pyrethroids, methoxychlor, tebufenozide, and *Bacillus thuringiensis*.

4.0 Extent of usage

The *Survey of Organophosphate Uses in Canada*, conducted in 1998, indicated that ethyl parathion is the preferred insecticide used in some crops. Some of the highlights of the reported use of ethyl parathion in Canada are as follows:

- Ethyl parathion was cited as having marginal use for control of pests in most of the crops listed on the label.
- Ethyl parathion was reported to be used for pest control on the following crops: carrot, celery, cranberry, grape, lettuce, onion.

5.0 U.S. Environmental Protection Agency status of ethyl parathion

On September 25, 2000, Cheminova Inc. and the U.S. Environmental Protection Agency (EPA) signed a Memorandum of Agreement stating the terms of ethyl parathion phase-out and cancellation in the U.S. Under the terms of this Agreement, the last sale, use, or distribution of ethyl parathion technical active ingredient and the last distribution or sale of end-use products by Cheminova will be December 31, 2002. The sale and distribution of existing stocks of end-use products by distributors and retailers will be August 31, 2003. The use of existing stocks will cease on October 31, 2003.

6.0 The PMRA's regulatory position

6.1 Registration

In response to the re-evaluation announcement, Cheminova Inc. has informed the PMRA that they wish to discontinue the sale, effective December 31, 2001, of ethyl parathion technical grade active ingredient (Pest Control Product [PCP] No. 20749) to the

registrants and formulators of the end-use products. These are United Agri Products, registrant of Clean Crop Parathion (PCP No. 14952) and Clean Crop Parathion 15 W (PCP No. 13956), and Plant Products Co. Ltd., registrant of Plant-fume Parathion Smoke Fumigator (PCP No. 8779).

In an action similar to those taken in the United States, the Canadian registrants of end-use products containing ethyl parathion have informed the PMRA that they will discontinue sale and distribution of end-use products as of December 31, 2002. Under authority of section 16 of the PCP Regulations, distribution and sale of these products by other than the registrant is permitted until August 31, 2003, and use of the products is to end on October 31, 2003, when the registrations will be cancelled.

6.2 Maximum residue limits

The following are the current Canadian maximum residue limits (MRLs):

Table II, Division 15, Food and Drug Regulations

Chemical	MRL	Foods
Parathion*	**0.7**	beans, red beets, broccoli, Brussels sprouts, cabbage, carrots, cauliflower, celery, corn, cucumbers, eggplants, endive, kale, kohlrabi, lettuce, onions, parsnips, peas, peppers, pumpkins, radishes, spinach, squash, Swiss chard, tomatoes, turnips
	1	apples, apricots, blackberries, blueberries, cherries, citrus fruits, cranberries, currants, gooseberries, grapes, hops, loganberries, melons, peaches, pears, plums, quinces, raspberries, strawberries

* Ethyl parathion is a synonym for parathion.

A reassessment of the definition of the residue of concern (ROC), based on plant and metabolism studies, indicates that the ROC should be redefined from parathion to parathion and parathion oxon. This ROC will be harmonized with that used in the U.S. by the EPA and the U.S. Food and Drug Administration. This change in the ROC will be communicated to the Canadian Food Inspection Agency (Agriculture and Agri-Food Canada) to ensure the monitoring for these residues in imported foods.

As indicated, the registrant of technical grade ethyl parathion has voluntarily discontinued sale of the product in Canada and indicated that they have no further interest in providing data in support of this pesticide in Canada. The PMRA therefore has no plan to schedule this pesticide for an updated risk assessment under the re-evaluation program.

The *Food and Drugs Act* prohibits the sale of food containing pesticide residues at levels in excess of the MRLs established in the Regulations under that Act. The decision to establish, maintain, or modify an MRL must be based on an assessment of information that is sufficient to determine the safety of the permitted level of residues.

Because ethyl parathion is not being scheduled for an updated risk assessment, the PMRA will recommend the revocation of all ethyl parathion MRLs established in Table II, Division 15 of the Food and Drug Regulations, including those that were originally established to cover both domestic uses and imports, and those that were established to cover imports only.

The PMRA will consider requests to modify or maintain the MRLs established for ethyl parathion to cover imports from other countries. Interested parties should petition the PMRA for the establishment of MRLs to cover ethyl parathion and ethyl parathion oxon residues in treated imported raw agricultural commodities and their processed products. The interested party may identify or provide existing domestic or foreign data and the PMRA will determine whether they are sufficient.

In cases such as this, where there is no remaining domestic use for the product and there is interest in import MRLs, the toxicology data would be reviewed (as per the process currently in place, i.e. a peer review of the EPA and other international data evaluations where available and suitable). Any necessary use information and chemistry and residue data would also be reviewed. The PMRA may request additional data. Data requirements will be similar to those required for establishing a MRL to cover domestic use of the pesticide (see Regulatory Directive DIR98-02, *Residue Chemistry Guidelines*).

The PMRA is also considering adopting the proposals that the EPA has under consideration for import tolerances that are outlined in their document, *Pesticides: Guidance on Pesticide Import Tolerances and Residue Data for Imported Food; Request for Comment* (Federal Register, Vol. 65, No. 106, Thursday, June 1, 2000). These proposals include a possible reduction to the standard data requirements, depending on the conditions described.

6.3 Conclusion of Re-evaluation

The decisions and actions outlined in this Re-evaluation Note conclude the re-evaluation of ethyl parathion by the PMRA.